# Introduction

This learning package is here to help you learn C++, the primary programming language for several modules in Abertay University. If you are joining one of our courses then we can assume you have some grasp of programming in general, either with Java or C#. This package will introduce you to the basics of C++ and cover some simple examples of converting Java/C# programs.

This learning package is for Direct Entrant students to help with understanding the basics of the C++ programming language. A number of modules at Abertay are designed around using this language so an understanding of how it works and how to program with it will be essential in your studies. In the past Direct Entrants usually have some programming experience, with Java and C# being the most common ones, so this package will also cover the conversion of these languages into C++ alternatives.

## Topics

We will cover the following topics over the course of this package:

Visual Studio Project Creation

Introduction to C++

Syntax of C++

Creating Variables

Loops and Statements

Functions

Classes

Introduction to Header Files

C++ Memory Management

After we have covered these topics we will have an exercise to allow you to see how a Java/C# project can be converted into C++, and finally we will give you a problem to solve and program a solution for.

By the time you finish the package you should have learned how to create and structure a C++ program, how to program a basic console application, and how to produce a solution to a problem using C++.

## Prerequisites

A C++ compiler. We recommend Visual Studio 2022. Projects are provided with a Visual Studio project in this version. If using an older version, then some changes may be needed to the Windows SDK or Platform Toolset.

[Selecting the correct Windows SDK (Microsoft Learn)](https://learn.microsoft.com/en-us/cpp/windows/how-to-use-the-windows-10-sdk-in-a-windows-desktop-application?view=msvc-170)

[Selecting the correct Platform Toolset (Microsoft Learn)](https://learn.microsoft.com/en-us/cpp/build/how-to-modify-the-target-framework-and-platform-toolset?view=msvc-170)